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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/973,339	10/09/2001	Michael Mao Wang	CE09030R	6214

22917 7590 01/14/2004

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EXAMINER

GANDHI, DIPAKKUMAR B

ART UNIT	PAPER NUMBER
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2133

DATE MAILED: 01/14/2004

3

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/973,339

Applicant(s)

WANG ET AL.

Examiner

Dipakkumar Gandhi

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-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 October 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

DETAILED ACTION

Drawings

1. The drawings are objected to because
 - In figure 3, item 307 labeled "rate matching" is incorrect. Item 307 should be labeled --rate de-matching-- as per page 5, line 34 and page 6, line 1 of the specification.
 - In figure 3, item 309 labeled "CRC check" is incorrect. Item 309 should be labeled --decoder-- as per page 4, line 28 of the specification.
 - In figure 4, the flow diagram for items 415 and 417 is incorrect. Item 415 labeled "k=K" is incorrect. Item 415 should be labeled --Is k=K?--. The arrow pointing downward from item 415 should be labeled --Yes--. The left arrow should be pointing outward from item 415, into item 417 and it should be labeled --No--. The left side of the item 417 should be connected to the item 407 with an arrow into item 407.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:
 - On page 1, line 20, "data streams 101 and 102" is incorrect. It should be --data streams 1 and 2--.
 - On page 4, line 28, "rate matcher 307" is incorrect. It should be --rate dematcher 307--.
 - On page 5, line 34, and page 6, line 1, "rate de-matching circuitry 305" is incorrect. It should be --rate de-matching circuitry 307--.
 - On page 6, line 4-5, "CRC check circuitry 305" is incorrect. It should be --CRC check circuitry 311--.. Appropriate correction is required.

Claim Objections

3. Claim 2 is objected to because of the following informalities: The following lines are repeated in claim 2. The repetition of the following lines from claim 2 should be removed.

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"The step of receiving the over-the-air signal comprising the plurality of transport channels multiplexed onto the over-the-air signal, wherein each of the plurality of transport channels comprises the plurality of transport formats".

Appropriate correction is required.

4. Claim 7 is objected to because of the following informalities: The following lines are repeated in claim 7. The repetition of the following lines from claim 7 should be removed.

"The step of receiving the over-the-air signal comprising / transport channels".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1, 2, 5, 6, 7, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stein (US 6,175,590 B1) in view of Cheetham et al. (US 4,727,495).

As per claim 1, Stein teaches a method for blind transport format detection, the method comprising the steps of:

Receiving an over-the-air signal (figure 2, col. 2, lines 40-42, Stein);

Determining a plurality of Cyclic Redundancy Check (CRC) metrics for each of the transport channels and a first transport format; determining a transport format combination metric based on the plurality of CRC

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metrics; and determining a transport format based on the transport format combination metric (col. 2, lines 47-55, Stein);

However Stein does not explicitly teach the specific use of a signal comprising a plurality of transport channels multiplexed onto the signal, wherein each of the plurality of transport channels comprises a plurality of transport formats.

Cheetham et al. in an analogous art teach that according to the invention there is provided a data communication system for handling a plurality of formatted data information channels each containing signaling and possibly also low speed data information, the system including a line circuit for each data information channel, means for multiplexing the plurality of formatted information channels received at the line circuits into a single time division multiplexed input data stream (col. 1, lines 42-50, Cheetham et al.).

Cheetham et al. teach transmitting those messages in a single time division multiplexed output data stream (col. 1, lines 68, col. 2, lines 1-2, Cheetham et al.). Cheetham et al. also teach that by suitable arrangement of the channel allocation store a combination of signaling channels having a different data rates, for example at 8K bit/s, 16 K bit/s and 64 K bit/s may be deformatted (col. 6, lines 67-68, col. 7, lines 1-2, Cheetham et al.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Stein's patent with the teachings of Cheetham et al. by including an additional step of using a signal comprising a plurality of transport channels multiplexed onto the signal, wherein each of the plurality of transport channels comprises a plurality of transport formats.

This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that multiplexing the channels comprising a plurality of transport formats onto the signal would provide the opportunity to transmit various signals with different data rates on the transmission line.

- As per claim 2, Stein and Cheetham et al. teach the additional limitations. Stein teaches the method of receiving an over-the-air signal (figure 2, col. 2, lines 40-42, Stein). Cheetham et al. teach that the plurality of transport channels are multiplexed onto the signal (col. 1, lines 42-50, Cheetham et al.), wherein each of the plurality of transport channels comprises the plurality of transport formats and the

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plurality of transport formats has a particular bit rate (col. 6, lines 67-68, col. 7, lines 1-2, Cheetham et al.).

- As per claim 5, Stein and Cheetham et al. teach the additional limitations. Stein teaches that determining the transport format based on the transport format combination metric comprises the step of determining the transport format, wherein the transport format utilized corresponds to the transport format having a largest transport format combination metric (col. 2, lines 47-62, Stein).
- As per claim 6, Stein and Cheetham et al. teach the additional limitations.

Stein teaches a method for blind transport format detection, the method comprising the steps of (a) receiving an over-the-air signal (figure 2, col. 2, lines 40-42, Stein), (b) determining / Cyclic Redundancy Check (CRC) metrics for the / data channels; (c) determining a transport format combination metric for the / data channels based on the CRC metrics for the / data channels; (d) repeating steps b-c for each possible transport format combination; and (e) determining a transport format combination corresponding to a largest transport format combination metric (col. 2, lines 47-57, Stein).

Cheetham et al. teach a signal comprising / data (transport) channels (col. 1, lines 42-50, Cheetham et al.).

- As per claim 7, Stein and Cheetham et al. teach the additional limitations.

Stein teaches receiving the over-the-air signal (figure 2, col. 2, lines 40-42, Stein). Cheetham et al. teach the signal comprising / data (transport) channels (col. 1, lines 42-50, Cheetham et al.), wherein each of the / transport channels comprises a plurality of transport formats (col. 6, lines 67-68, col. 7, lines 1-2, Cheetham et al.).

- As per claim 10, Stein and Cheetham et al. teach the additional limitations.

Cheetham et al. teach an apparatus comprising a de-multiplexer having a data stream as an input, wherein the data stream comprises a plurality of transport channels, each having a plurality of transport channel formats, the de-multiplexer outputting a plurality of channels based on a particular transport format combination (col. 2, lines 3-7, Cheetham et al.).

Stein teaches a plurality of Cyclic Redundancy Checking (CRC) circuitry, each having one of the plurality of channels as an input and outputting a CRC for the channel; and a logic unit having a plurality of CRC

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values as an input and outputting a transport format combination metric based on the plurality of CRC values (figure 2, col. 2, lines 47-55, Stein).

- As per claim 11, Stein and Cheetham et al. teach the additional limitations.

Stein teaches the apparatus further comprising storage outputting data based on a transport format combination corresponding to a largest transport format combination metric (figure 2, col. 2, lines 47-62, Stein).

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 3-4, 8-9, 12-13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

- In claims 3-4, 8-9, 12-13, "arg max" is used in the equations. However "arg max" is not defined in the specification. The meaning of "arg max" is not clear.
- In claims 3-4, 8-9, 12-13, " $\pi \in \{24, 16, 12, 8, 0\}$ " is used in the equations. However the value of π to be used for different conditions is not defined in the specification.

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

11. Claims 3-4, 8-9, 12-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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It is not clear to Examiner what \hat{k} is or what happens when such \hat{k} is determined. On page 2, line 2 of the specification $K = \prod_{i=1}^I J_i$ is determined. Are \hat{k} and K related ? The said claims would be allowable if amended.

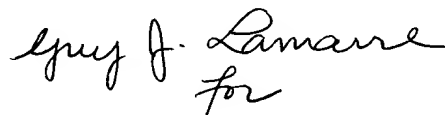
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dipakkumar Gandhi whose telephone number is 703-305-7853. The examiner can normally be reached on 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (703) 305-9595. The fax phone number for the organization where this application or proceeding is assigned is (703) 746-7239.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.



Dipakkumar Gandhi
Patent Examiner



Albert DeCady
Primary Examiner